The Refrigeration Service Engineer

Vol. 2
No. 6

JUNE • 1934

The New Stewart-Warner Refrigerator

The Control of Refrigerants—Question Box—Dairy Refrigeration—Pointers

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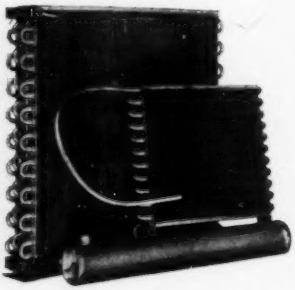

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The REFRIGERATION SERVICE ENGINEER

Devoted to the Servicing of
REFRIGERATION UNITS *and* OIL BURNERS

VOL. 2 JUNE, 1934 NO. 6

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A Monthly Illustrated Journal Devoted to the Interests of the Refrigeration Service Engineer in the Servicing of Domestic and Small Commercial Refrigeration Systems and Oil Burners

OFFICIAL ORGAN REFRIGERATION SERVICE ENGINEERS' SOCIETY

VOL. 2, NO. 6 CHICAGO, JUNE, 1934 $2.00 per Annum

THE NEW 1934

Stewart-Warner Refrigerator

This New Refrigerator Incorporates Improved Engineering Features. A Larger Compressor and New Type of Cold Control Specifications.

THE new 1934 Stewart-Warner refrigerator has many new and interesting features, although no radical departure has been made in the operating mechanism. According to Stewart-Warner, only proved methods and engineering experience of years has been incorporated in its mechanism. The assembly consists of the following: A cabinet construction embodying the latest features of design and insulation to cut down to a minimum heat leakage. Construction for durability and long life is shown by the manner in which the insulation is sealed against moisture. Hardware is of heavy, durable material and suitable finish. A feature shelf which allows the complete removal, if necessary, for rearranging of foodstuffs, and which may be pulled out only part way to give easy access to the back of shelf. Another feature is the tip-touch door latch, which can be opened with the slightest pressure and can be locked securely, if desired.

Cold Control

An important feature of the 1934 Stewart-Warner refrigerator is the location of the cold control bulb. The cold control is of Penn make and is so placed as to give more accurate control of the refrigerator temperature. The bulb is located in a tube in the header assembly of the evaporator and this tube extending inside the evaporator with a closed end and sealed to the header. This tube in turn is immersed at all times in the refrigerant in the evaporator, giving a true temperature directly to the cold control bulb contained therein. Also, this control has a wide differential of 23° F., which makes a more accurate adjustment of the control possible.

To eliminate moisture or ice formation at the control bulb, the tube is first filled with a quantity of lubricant and the control bulb is then inserted and sealed with a rubber stopper. This method gives uniform results and excludes the possibilities of poor contact and ice accumulation, as is sometimes encountered when cold control bulb is clamped to exterior parts of evaporator.

The cold control is the new semi-automatic type and in defrosting it is only necessary to turn it to the Defrosting position and immediately back to normal position and the compressor resumes normal operation after defrosting without further attention.

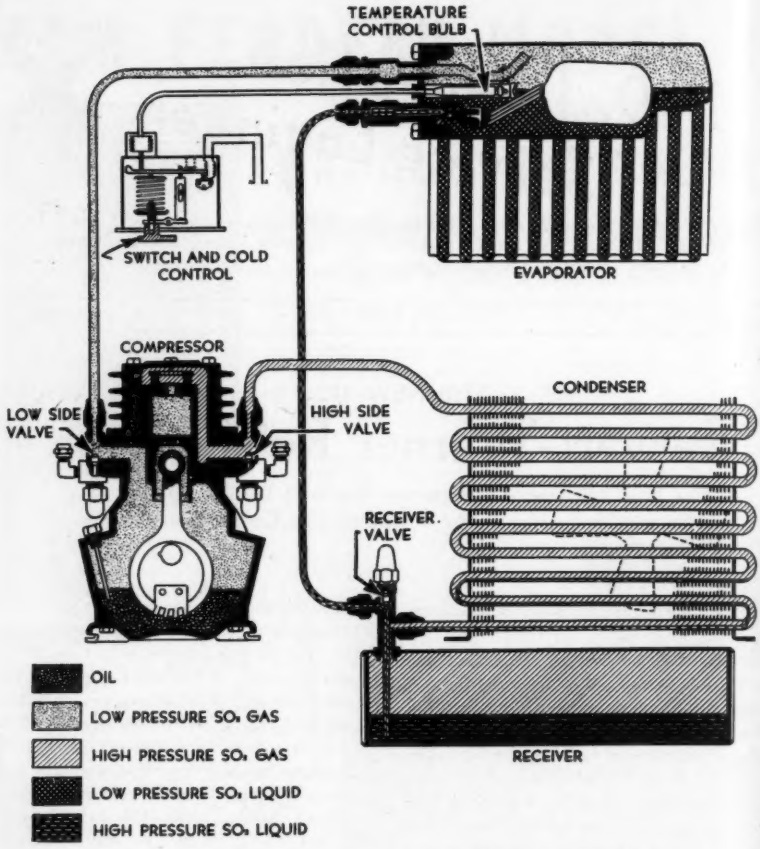


FIG. 1. OPERATION CYCLE OF STEWART-WARNER REFRIGERATOR

High Side Specifications

Compressor—Reciprocating Type.
Cylinders—2.
Bore—1½".
Stroke—1 7/16".
R. P. M.—375.
Refrigerant—Sulphur dioxide (SO_2).
Charge—5 pounds.
Condenser—McCord or Bush.
Motor—1/5th horsepower, capacitor start.
Drive—Single V-Belt.
Shut-off Valves—Drop forged bronze.
Base—Pressed steel.
Method of mounting—Two Cantilever springs on rubber; two coil springs on rubber.
Lubricant—22 ounces white oil 80 to 90 viscosity.

The compressor is equipped with the conservative two-cylinder vertical reciprocating type, eccentric drive. The cast iron pistons are hand lapped to a precision fit. An intake and discharge valve are used for each cylinder to insure that the maximum amount of refrigerant gas be compressed at each stroke of the piston.

One of the features of the compressor is the increased amount of finning which is de-

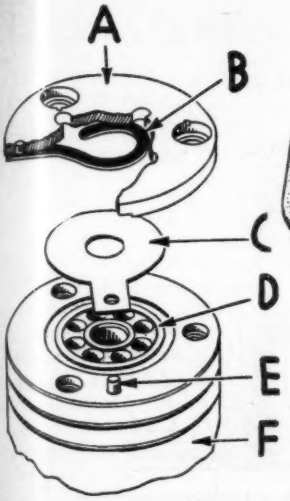


FIG. 2. PISTON DISC VALVE

A. Piston Head Plate
B. Valve Seating Spring
C. Valve Disc
D. Valve Seat
E. Valve Pin
F. Piston

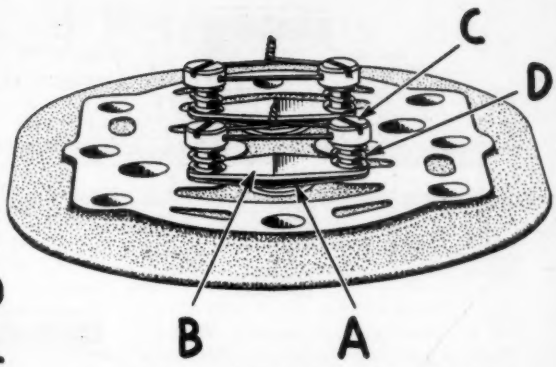


FIG. 3. DISCHARGE VALVE ASSEMBLY

A. Discharge Valve
B. Reinforcing Plate
C. Pilot Stud
D. Valve Spring

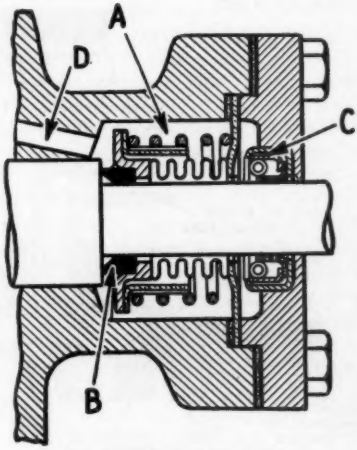


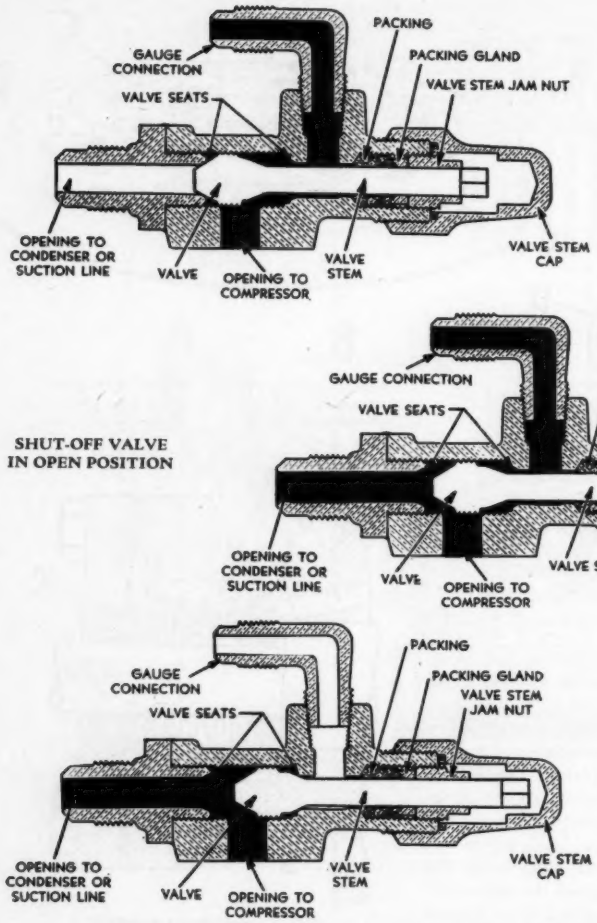
FIG. 4. COMPRESSOR SEAL

signed to reduce temperatures in the head. Another important change is one that keeps the crank shaft seal flooded with oil at all times, reducing the possibility of the shaft seal running dry. To insure proper lubrication of cylinder walls, use is made of a novel slot on each side of the piston. On the side of the compressor body is attached a gauge rod for checking the oil level. The bed plate on which the compressor and motor are mounted is equipped with legs, which will permit the service man to set the entire condensing unit assembly on the floor without danger of its tipping over or putting the entire load on the flywheel.

Compressor Valves

The compressor valves used in the Stewart-Warner refrigerator are illustrated in Figs. 2 and 3. The intake and discharge valves are so designed as to size of gas ports and spring balancing, as to result in a maximum volumetric efficiency and a minimum of valve noise. Fig. 4 shows that the seal chamber is supplied with oil at its top through the drilled hole "D" in the bearing. Thus, it is at all times submerged in a flood of oil, which prevents the seal face from drying up.

Figs. 5, 6 and 7 show the simple manner in which the service man can install a set of gauges through the use of double seating, high and low side shut-off valves on the compressor. Fig. 4 shows a shut-off valve fully closed and in Fig. 5 the valve is fully open. In Fig. 6 the shut-off valve is "open" connecting all three openings, so that the unit can be operated and gauge readings taken during its operation.



FIGS. 5, 6 AND 7. LOW AND HIGH-SIDE SHUT-OFF VALVE

CHARGING REFRIGERANTS

IN charging household systems, it is, of course, customary to first use a vacuum pump to eliminate air and moisture from the refrigerating system.

It is extremely dangerous to heat a cylinder containing liquid refrigerant. When the pressure drops in charging, it is probably best to place the cylinder in a bucket of water in order to supply sufficient heat to evaporate the liquid refrigerant from the cylinder rapidly.

In charging a thermostat, it is very important to first eliminate the air. The best method is to use a vacuum pump, although it is possible to eliminate practically all of the air by repeatedly charging and discharging the thermostat bulb and line with the gas to be used. Liquid should fill about two-thirds of the bulb.

The Control of Refrigerants . . .

ARTICLE NO. 10
POSSIBLE THERMOSTATIC EXPANSION VALVE TROUBLES

Failure of Thermostatic Expansion Valve May Mean—Loss of Liquid Charge, Valve Leaking, Improper Location of Bulb or Incorrect Adjustment.

By J. L. SHRODE *

WHEN a thermostatic expansion valve does not function properly its failure is usually due to one or more of the following causes:

Loss of Liquid Charge—If the valve fails to open and remains closed at all times it has lost its charge. This may be caused by a broken diaphragm, a rupture in the tubing connecting the bulb and the valve due to a defect in the material or to rough handling, or a bad welded joint in the bulb. When this occurs it is necessary to replace the self-contained assembly consisting of the bulb, tubing, diaphragm, and diaphragm housing. This is done by unscrewing the cap screws which hold this assembly to the valve body, removing the defective assembly and screwing a new assembly in place.

Valve Leaking—If, after being in service for a time, a thermostatic expansion valve fails to close tightly and leaks refrigerant during the shut down period, its pin and seat have been damaged. The presence of dirt and foreign matter in the valve will soon cause it to leak. A good liquid filter must always be installed directly ahead of the thermostatic expansion valve. Lack of refrigerant in the system will cause the valve pin and seat to cut and score quite rapidly.

Improper Location of Bulb—The location of the thermostat bulb is a matter of great importance to the successful operation of this valve. The importance of installing the bulb inside of the refrigerated unit and the undesirable effects obtained when it is not so installed have been discussed at length earlier in this series of articles. The necessity of a good contact between the bulb and the pipe and also the proper location of the bulb with respect to the valve itself have been previously discussed. These precautions must be observed to obtain proper operation of the thermostatic expansion valve.

The thermostat bulb must not be installed on a portion of the suction line that forms a

* President, Alco Valve Co.

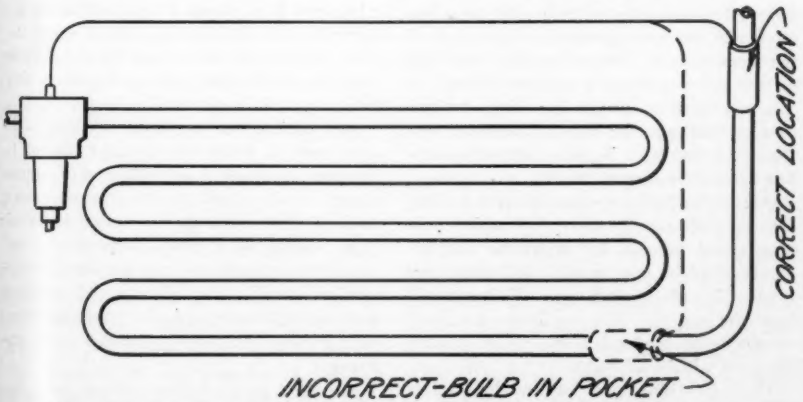


FIG. 1. CORRECT AND INCORRECT LOCATIONS FOR THERMOSTATIC BULB

pocket or trap for liquid refrigerant. This is illustrated in Fig. 1. When the bulb is installed in a pocket it remains cold during the shut down period. When the compressor starts up, it must first pump the accumulated refrigerant out of the pocket before the bulb will warm up. Due to this, the suction pressure is greatly reduced, often to a vacuum, before the valve opens. Because of the slow heat transfer between the coil and the bulb at this pocket, the valve operation is sluggish and erratic.

Incorrect Valve Adjustment—There is only one adjustment on the thermostatic expansion valve. This is an adjusting stem which varies the compression of the balancing spring. After the valve is installed, the system should be operated for one-half to one hour before making any adjustments. If the coils do not frost completely, if the room temperature is too high, or if the superheat is too high, the spring compression should be reduced.

On the valve mentioned in this chapter this is done by screwing the stem to the left. If the coils frost too far, if the compressor pumps liquor, or if the room temperature is too low, the spring compression should be increased.

These adjustments should be made gradually and the system should operate about one-half hour between adjustments. A balance must be obtained between all of the thermostatic expansion valves on a system in order to obtain proper results and it is best to adjust only one valve at a time.

How to Tone Up Your Business

When You Spend Money to Advertise Your Service Business, Plan Your Campaign to Show Definite Returns. No Matter How Little or How Much Is Spent, You Can Make It Pay If It Is Planned Properly.

By T. J. FOWLER *

WITH the advancement and growth of the service business, definite methods will be adopted by service companies to influence more business. The business of refrigeration servicing is one that requires intelligent promotional effort. Regardless of the amount spent for advertising it should be planned to produce a definite return.

A metropolitan advertising man, who had been operating under big city methods, was forced to slow up. So he purchased a similar business in a small town.

One of his first experiences after getting his own office started was: A local business man called him on the telephone and requested that he run an ad. "All right," returned the advertising man. "When can I have the copy?" "Oh, anything suits me," returned the business man. "Put in anything; it will be all right."

The advertising man was puzzled at this happy-go-lucky way of advertising. But investigation indicates that all over the country, every day thousands of dollars are spent for advertising which has not one chance in a hundred to pay back a dividend, much less the principal; and this condition usually prevails because the advertiser devotes almost less than no thought to preparing his advertising to strike and win.

Advertising that is really effective must have careful study and thought behind it. In many instances, real artistic skill is necessary to give publicity its greatest power. And yet, how often the expression is heard: "Oh, I advertise a little. Sometimes I use prepared copy, but as a rule my business advertises itself." Why advertise at all if you have no definite message for your customers or for those you hope to make your customers?

The most successful advertisers have discovered certain general principles among

* Associated Refrigeration Management.

others in their advertising, and have adapted their advertising accordingly. These principles are:

1. For certain commodities or service, one medium of advertising is better than another.

2. In the complexity and multiplicity of mental operations, the human mind forgets easily, and therefore repetition, frequency and change are large and nicely adjusted factors in advertising success.

3. Most people have a sense of rhythm, and like reading matter that has a slight swing to it. A novel trade name or a catchy singsong slogan is apt to run in the mind.

4. People as a rule are busy, and therefore advertisements must, for the most part, be brief and to the point.

5. People usually are fond of pictures, and a good illustration in an advertisement is often worth much within its field of influence.

6. Nearly everyone instinctively resents any portrayal of ugliness or suffering, and the illustration that suggests either will probably be ineffective unless it is relieved by a pleasant contrast, or is used to convey a definite warning of evils that are to be avoided.

7. Most people apparently take notice of heraldry in almost any form; this probably accounts for the popularity of the trademark, the business coat of arms.

8. Human nature usually responds easily to just the right suggestion, and therefore many find such a convenient device as a coupon difficult to resist.

9. The eye can grasp but four or five words at a glance and therefore it usually pays to reduce the headline of an advertisement to this scale.

10. The eye is attracted by clear, open type and well arranged composition, and therefore irregular type, close or unusual type and solid set composition usually should be avoided.

11. The eye is sensitive to harmony as well as to proportion in the content and typographical arrangement of an advertisement, and every effort should be exerted to avoid a clash of any sort in advertising make-up.

12. When centered on papers and posters, the eye goes automatically to the upper portion of the reading space, and this space should be made the vital spot in the advertisement.

13. The eye is easily attracted by size, by unusual shapes, broken spaces or lines, and they may often be used to good advantages for purposes of attraction.

14. The eye is often given a satisfying sense of completion by a well constructed, artistic and appropriate border.

15. The eye tends to make the upper portions of spaces seem larger than the lower, and it tends also to make vertical or longitudinal lines that are crossed at right angles by other lines seem longer than uninterrupted lines. For this reason, the most important content of an advertisement should be placed well up in the space, and an advertisement that is prominently broken will usually arrest the eye more forcibly than one that is not.

16. The eye has a tendency to follow lines and the gaze of other eyes; and, if an advertisement has a straight line, or a curve, or a picture in it, the line, the curve, the gaze of the eyes of the pictured individual should lead into the center of the advertisement not away from it.

17. The eye should be drawn to the salient point of the advertisement. The eye is hasty in reading; it is apt to read really for ready, horse for hose, and so on. It is advisable when writing advertising copy to avoid combinations of similar words.

18. Before trying to write copy, the average writer of advertising should know about these factors thoroughly, especially in their relation to his commodity, his medium and the space his advertisement is to occupy.

Advertising copy may be classified in several ways, but copy of the one man business (which is more or less local in its scope) possibly can be best considered under the common classification of direct and indirect advertising.

Direct advertising consists of matter that is addressed or given directly to the prospective customer. Indirect advertising consists of matter that is not sent to individuals, but is addressed to the public in general, such as billboard posters, magazines and newspapers.

The service to be advertised probably can be handled best under one or more of four

types of copy, which are: inspirational, descriptive, "reason why," and suggestive or publicity copy.

Obviously, it is impossible in brief space to discuss at length all the essentials of successful advertising, those of deciding upon the best medium, laying out the advertisement, making the appeal timely, and so on. It is important that all your advertising should carry conviction of its sincerity. It is agreed that the greatest value of conservative praise and of a simple, natural style in advertising is that they sound sincere, they impress the reader with their sincerity, and he is more ready to believe what is said. When an advertisement has brought its reader to that point, it has practically accomplished its purpose.

In order to work this plan of reaching out for more business, it is necessary that the writer of advertising have a thorough knowledge of his points of appeal, and have a sincere desire to benefit his readers.

PROPER COOLING AND DISPENSING OF BEER

THE following suggestions on beer cooling are made by the Temprite Products Corpn., manufacturers of Temprite Coolers.

Beer today must be served by modern methods because the buying public is modern minded.

In the past kegs of beer were often permitted to remain in a non-refrigerated room and allowed to warm up to surrounding air temperatures and the beer was served to a great extent in a more or less unpalatable condition in so far as collar and temperature were concerned. They were able to "get by" with these old time methods because the consuming public was not at that time educated to any better method of cooling and dispensing, nor were their homes equipped with modern devices. Today a new generation which is quite familiar with all modern and labor saving devices must be satisfied. This present day generation is very critical as to the temperature or quality of the beer or beverage and as to the manner in which it is dispensed.

Keg beer is usually delivered by the brewery at a temperature not to exceed 50 to 55 degrees. The keg should be placed in a refrigerated compartment which will not permit it to rise above that temperature. From this temperature it should be cooled instantaneously as drawn to a temperature of approximately 40 degrees for light bodied, light color beer and approximately 45 degrees for heavy bodied, dark color beer.

The pressure on the keg may be maintained by CO_2, purchased in drums, with automatic pressure regulating valves or it may be maintained by an automatic air pump equipped with filters, which automatically maintains the predetermined pressure. After a temperature of 40 degrees is once obtained it should be automatically and definitely maintained at this point. The CO_2 or air pressure should then be set to obtain the proper foam or collar on the glass of beer. The settings of both the pressure on the beer keg and temperature at the cooler must be maintained at all times which will result in a glass of beer at just the proper temperature and with the proper collar. Should, however, the temperature in the cooler be allowed to rise, assuming the same pressure on the keg, then the collar on the finished glass of beer will be too great. On the other hand if the beer is allowed to become too cold in the cooler with the same pressure on the keg the collar will be insufficient and too much beer will be served which will result in lack of profit.

Foam Control

Many features enter into the controlling of the foam at the glass. First, it is necessary to have the pipe from the keg through the cooler and to the faucet of a uniform size and without restrictions. 3/8" has been determined as being the best size tubing to be used. Special beer hose may be used instead of block tin. Block tin, however, is preferable. Any restriction in the line will cause a too foamy glass of beer. The CO_2 or air pressure on the keg and through the system must be uniformly maintained at the proper point in order to deliver glasses of beer with a uniform and proper amount of rich, creamy foam. Often a keg of beer is rolled, possibly for several feet, tapped and placed in the refrigerated dispensing room, from which keg the beer, if immediately drawn, will be "wild."

THE Question BOX

Readers are invited to send their problems pertaining to the servicing of household refrigerators and small commercial refrigerating equipment as well as oil burners to "The Question Box" which will be answered by competent authorities.

THE following questions have been referred to the Question Box and are answered by C. E. Hamilton, chairman of the Educational Committee, Chicago Chapter, Refrigeration Service Engineers' Society.

Question 43. Could you give me the following data on an Iroquois refrigerator, Model C? What refrigerant is used and how much? Is the heating unit hooked on direct to the line, or should it be on only when the machine is running?

ANSWER. The Iroquois refrigerator is an ethyl chloride machine and is charged with ten pounds of refrigerant. The heating unit which you refer to is hooked up to an oil separator and is on when the machine is running. If the heating unit is disconnected, the oil will not flow to the compressor crank case and as a consequence no refrigeration will result.

Question 44. I am having trouble with an ammonia unit. The meat display case is equipped with three vertical pipe coils and the walk in cooler is equipped with overhead fin coils. The thermostatic control is in display case between the first and second coils. The refrigerant enters display case first then flows to walk in cooler. I can open the expansion valve for a short time, possibly three minutes, then close it to a regular operating point and unit will work fine for possibly ten days. Then frost will begin to leave the walk in cooler and creep back through No. 3 coil into No. 2, then into No. 1 and in a short time the expansion valve will be a frosted ball.

ANSWER. The trouble you are experiencing on this unit may be due to various causes. Possibly the expansion valve is defective and needs replacing. Foreign substances may be clogging up the valve orifice, which are washed out by the opening (flushing) of the valve. Then, too, there may be an oil slug in system or it may be short of ammonia.

More detailed information should be given as to operating pressures, make of expansion valve, etc., so as to enable a more accurate diagnosis of your trouble.

Question 45. (1) What causes the apparent pumping of oil of sulphur dioxide compressor when suction side gets down to a vacuum? Also sometimes when starting the machine? (2) Is it advisable to use a calcium drier on a unit that has been serviced several times to insure its perfect dryness? (3) What would be the first indication of moisture in a system?

ANSWER. (1) Mixing of refrigerant with the oil in the crank case. (2) Not necessarily if you believe the system to be free of moisture; otherwise, of course, use a drier. (3) Freezing up of expansion or float valve.

Question 46. Can you give me the characteristics and properties of Carrene gas used in the Grunow refrigerator? What are its working pressures for an ice cream freezer, or can it be used for that service? How cold can you get it? Can it be used for temperatures as low as SO_2?

ANSWER. For complete table on the properties and characteristics of Carrene, refer to the July, 1933, issue of THE REFRIGERATION SERVICE ENGINEER, page 25. You will note that at —10° the absolute pressure is .699 pounds per square inch and the gauge reading is 28.08". Carrene gas for domestic refrigeration purposes is only used in the Grunow refrigerator and for equipment of commercial sizes by the Carrier Engineering Corp., New Brunswick, N. J. You will note at this low temperature that it is necessary to practically operate at a perfect vacuum and therefore it may not be as applicable to the service that you suggest as SO_2.

SERVICE POINTERS

Readers are invited to send descriptions of "kinks" which they have found to be of practical help in their every day work. Just send your idea or sketch in the rough, which will be prepared for publication. All contributors' names will be printed. Address the "Kinks" Editor, REFRIGERATION SERVICE ENGINEER, 433 N. Waller Ave., Chicago.

Servicing Oil Bound Low Side Float

OIL logging causes long running, slow uneven freezing of ice cubes. This indicates too much oil. Check to be sure evaporator is level. If evaporator is leaning towards back there will be a tendency to accumulate too much oil in evaporator thus retarding boiling of liquid. Remedy is to level cooling unit.

However, if cooling unit is level and there is still an excess of oil add about ½ pound sulphur dioxide. Run compressor and tip cabinet forward about 8" and hold in this position about three minutes. This will drain oil from the evaporator down the suction line and remedy the trouble.

How to Balance Pressure Without Compound Gauge

WHEN removing parts on the low side, it is a well understood fact that pipe line should not be disconnected while under vacuum otherwise air will rush into system. It is customary to break the vacuum by opening up the receiver valve for a few minutes until the compound gauge reads from two pounds to ten pounds. This operating is called "balancing the pressure." However, there are certain types of compressors that have no facility for attaching a compound gauge or a compound gauge may not be available. Nevertheless, it is possible to roughly balance the pressure after evacuating as follows:

1. Close receiver valve.

2. Start compressor to evacuate liquid line, evaporator and suction line.

3. Run compressor discharge valve in short to prevent leak back from condenser through piston rings or compressor valves into the low side. If confident that piston rings and valves are tight, this operation need not be performed.

4. With the handle end of ratchet wrench open receiver valve ¼ turn for about five seconds by the watch or count twelve slowly.

5. The pressure should be balanced to about ten pounds which while somewhat excessive will leave the system safely in a balanced state above a vacuum.

Flushing the Float Valve

MANY times the float may be held open slightly by a particle of scale or dirt under the needle. Before changing the valve or float needle it may be flushed in an attempt to remove the obstruction. To do this:

1. Close the liquid line at the cooling coil or in a domestic refrigerator at the receiver valve.

2. Run a compressor for fifteen minutes.

3. Raise the head pressure or condenser pressure by covering the condenser on an air cooled compressor or by closing the water valve on a water cooled compressor by allowing the compressor to operate several minutes longer.

4. Open the liquid line valve as suddenly and as widely as possible so that the liquid rushing through the needle will clean it.

5. Open all valves to operating positions and note whether the flushed float is working properly. If not change the float valve.

Changing Receivers on Domestic or Small Commercial air Cooled Sulphur Dioxide Units

A RARE situation arises when it is necessary to remove a receiver, replace a receiver, to remove a plugged up receiver valve tube or remove any part on the high pressure side on domestic or small commercial sulphur dioxide units. Inasmuch as it is not customary to supply a shut off valve

at the inlet of condenser it is necessary to remove the complete charge from the receiver in order to replace same. The service operation of removing a charge may be performed in three ways described in the following topics:

(1) The sulphur dioxide is discharged in liquid form by blowing off receiver into caustic soda or lye solution.

(2) The sulphur dioxide may be blown off through a hose or copper tube line to outside of building.

(3) The saving of refrigerant by transferring to a drum.

Inasmuch as sulphur dioxide is cheap, the most efficient method of thoroughly cleaning out a sulphur dioxide system is therefore to blow off the refrigerant in the form of liquid out of the receiver valve. This method purges sediment and oil that may have settled in receiver. The removal of the old gas and recharging with fresh gas may prevent corrosion that has already started. We suggest the following operation to discharge sulphur dioxide in liquid form from receiver:

(1) Close receiver valve.

(2) Operate unit until a vacuum of at least 15" is obtained or until it is estimated that the liquid refrigerant is removed from the liquid line.

(3) Close the compressor discharge service valve.

(4) Balance pressure by opening receiver valve back of ratchet wrench for about five seconds until 5 to 15 pounds pressure is obtained in the low side and compressor crankcase.

(5) Disconnect the liquid line at receiver, being careful to turn head or wear goggles when disconnecting.

* * *

T. A. Koehl,
New York.

The REFRIGERATION SERVICE ENGINEER magazine is very helpful to me and I certainly wish to continue receiving it regularly each month as I would miss it.

Chas. L. Dugan,
Pennsylvania.

Want to compliment you on the subject matter of your magazine. It is increasingly interesting and instructive and really what the field service man is thinking about.

DAIRY REFRIGERATION

By JOHN ELLISON

THE accompanying diagram shows the direct expansion system of milk cooling, suitable for a small dairy. The milk is usually received by truck from receiving stations or direct from the farmer, it is then pasteurized, cooled and bottled. Most of the refrigeration required in a dairy is for cooling the milk after it has been pasteurized, and the amount of refrigeration required depends upon the pasteurizing equipment employed. In plants where a regenerator or heat exchanger is used the amount of refrigeration required will be considerably less.

Two systems of pasteurization are used, the "holder" and the "flash" processes. In the former the milk is heated to about 145 deg. and held at this temperature for about 30 minutes. In the flash or continuous process the milk is heated to a temperature of 165 deg. or more from 30 to 60 seconds.

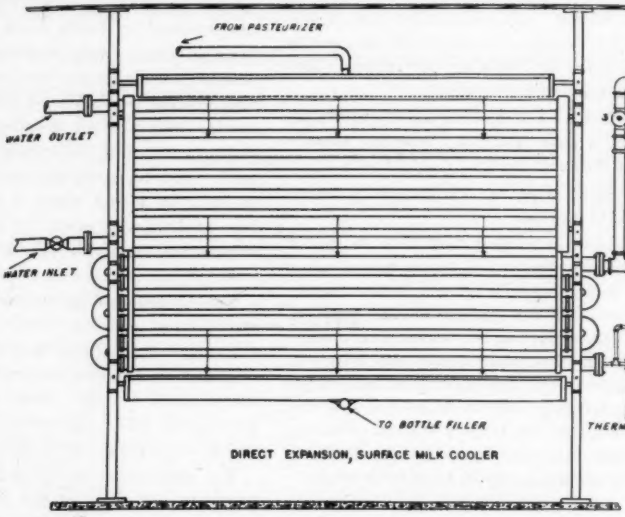
The milk cooler shown in the diagram on pages 16 and 17 is of the direct expansion tubular surface type. The milk flows or is pumped from the pasteurizer or holding tanks to a v-shaped distributing trough at the top of the cooler, this trough has a series of small perforations or openings in the bottom, through these openings the milk is distributed to both sides of the cooler. It flows or trickles downward on the outside of the cool tubes and is collected in a trough below the cooler.

The temperature of the milk is reduced by water circulated through the upper section to about 65° to 85° depending on the temperature of the water. The lower or refrigerated section of the cooler reduces the temperature to about 40° to 45°.

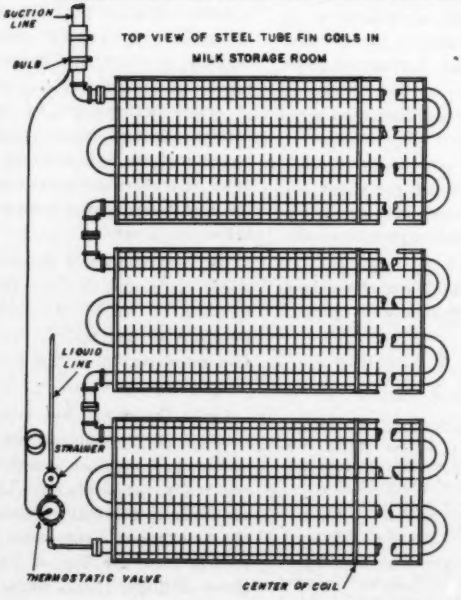
From the cooler the milk is transferred to the bottling machine where it is bottled and capped and then stored in the refrigerator ready for delivery. The refrigerating unit is fully automatic and equipped with all the customary automatic controls. The switch 1 on the top of the starter 8 has three settings, Hand, Stop, and Automatic control. The switch should be on hand con-

DAIRY REF ERATION

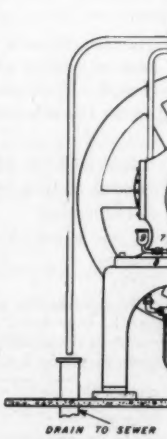
WITH EXPLA TEXT

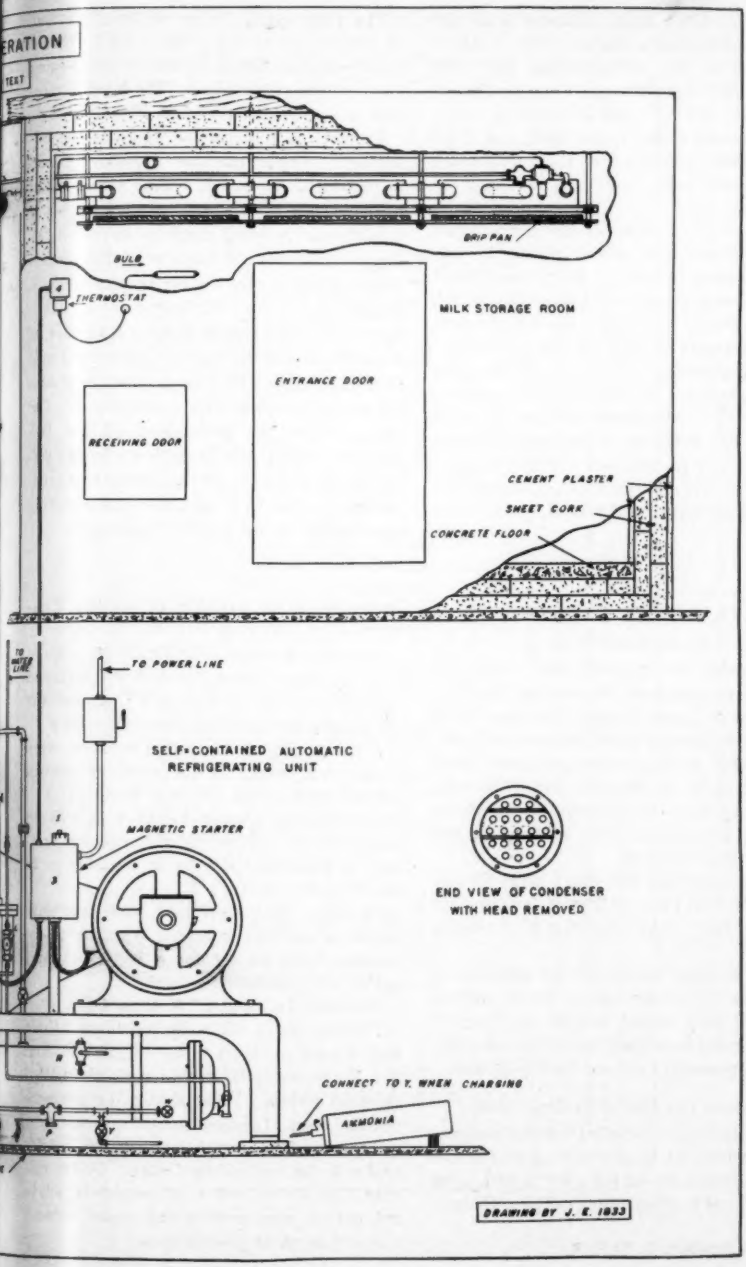


DIRECT EXPANSION, SURFACE MILK COOLER



TOP VIEW OF STEEL TUBE FIN COILS IN MILK STORAGE ROOM




DRIP PAN
BULB
THERMOSTAT
MILK STORAGE ROOM
ENTRANCE DOOR
RECEIVING DOOR
CEMENT PLASTER
SHEET CORK
CONCRETE FLOOR
TO POWER LINE
SELF-CONTAINED AUTOMATIC
REFRIGERATING UNIT
MAGNETIC STARTER
END VIEW OF CONDENSER
WITH HEAD REMOVED
CONNECT TO Y WHEN CHARGING
AMMONIA
DRAWING BY J. E. 1933

trol while cooling milk, otherwise it should be set on automatic, and with the switch in this position the refrigerating unit will maintain the desired temperature in the refrigerator. Valves 1 and 2 should be closed when the milk cooler is not used, and if no refrigeration is wanted in the refrigerator when cooling milk, then valve 4 should be closed.

The thermostat controls the temperature in the refrigerator, and it should be adjusted to start the unit at 38° F., and when the temperature has been lowered to 35° F. the unit should stop, thus the temperature in the refrigerator will not vary over 3°.

The combination pressure and temperature gauge shows the pressure and temperature of the refrigerant within the milk cooler. The function of the back pressure regulator 3 is to maintain a constant pressure within the milk cooler, and thus a constant temperature of the refrigerant is assured.

The thermostatic valve controls the flow of refrigerant to the cooler, and it should be adjusted so that there will be no freezing back on the suction line. The hand expansion valve is for hand control if desired.

From U. S. Bulletin 138 we quote the following: "Ample machine capacity should be provided. To install a small machine and to operate it for 15 to 18 hours per day is a mistake. A small machine operated for long periods has a much shorter life than a larger machine running for shorter periods. Furthermore the efficiency of a large machine is considerable greater than that of a small one, and the cost of producing a unit of refrigeration with a large machine is considerably less than with a small one. The difference in the initial cost of the two machines would soon be made up by the difference in cost of operation, even disregarding the greater wear and tear and resulting shorter life of the smaller machine."

WHAT BACK PRESSURE?

By H. HERKIMER*

THE table on opposite page shows approximate pressure temperature relations or saturation points in the evaporator which gives corresponding back pressure and pressure switch settings for equipment being refrigerated at the present time. The table may be applied on thermostatic expansion valves, high pressure float systems or low pressure float systems.

At the same time this chart gives the approximate first trial setting of the constant pressure type automatic direct expansion valve.

These settings should not be regarded as absolutely correct for all conditions and designs and they should only be used as the starting point in setting the switch, or judging the pressure at cut out on any system.

How to Use Switch Setting Chart

Problem No. 1.—At what cut out pressure and at what cut in pressure should a low pressure switch be set for a 40° cooler using a thermo valve (sometimes called a thermostatic expansion valve, with sulphur dioxide?

ANSWER—Referring to Chart 13, column 5 and 6 using sulphur dioxide it will be noted that the cut out pressure is 9" vac. and the cut in pressure is 13 lbs. for a 40° cooler.

Problem No. 2—If methyl chloride were used, what would be the pressure control settings with a high pressure float?

ANSWER—In column 7 and 8 it will be noted that for methyl chloride cut out pressure is 4 lbs. and the cut in pressure is 28 lbs. for a 40° cooler.

Problem No. 3.—What back pressure should a constant pressure type direct expansion valve be set for a household unit cooler using methyl chloride?

ANSWER—In column 7 is given 4 lbs.

Problem No. 4—It is desired to cool three walk in refrigerators to 20° F., 25° F., and 35° F., respectively, with a multiple methyl chloride system. What should the pressure switch be set at cut out and at cut in?

ANSWER—The lowest temperature refrigerator is the controlling factor. Under column 7 it states that a 20° cooler is set to cut out at zero pounds and under column 8 to cut in at 14 pounds gage.

* National President, R. S. E. S.

CHART NO. 13

CHART NO. 13

SATURATION TEMPERATURES AND CORRESPONDING SUCTION PRESSURES FOR CONTROL SETTINGS
—Also Auto. D. E. Valve Settings

1	2	3	4	5	6	7	8	9	10
APPLICATION	TEMP. REQUIRED	SATURATION TEMP.		SATURATION PRESSURE					
				SULPHUR DIOXIDE		METHYL CHLORIDE		FREON—(F-12)	
		CUT OUT	CUT IN	CUT OUT	CUT IN	CUT OUT	CUT IN	CUT OUT	CUT IN
Ice Cream Storage	5° Brine	−10°	5°	14″	6″	0#	6#	5#	12#
Coolers	20°	−10°	20°	14″	3#	0#	14#	5#	21#
Coolers	30°	− 5°	30°	11″	7#	2#	20#	7#	29#
Coolers	40°	0°	40°	9″	13#	4#	28#	9#	37#
Coolers	50°	10°	50°	3″	19#	9#	36#	15#	47#
Coolers	60°	15°	60°	0#	23#	11#	46#	19#	58#
Domestic-Household	45°	0°	25°	9″	5#	4#	17#	9#	25#
Water Cooler	45°-55°	25°	45°	5#	15#	17#	30#	25#	42#
Beverage Cooler	40°	15°	40°	0#	13#	11#	28#	19#	37#
Room Cooler	60°	25°-30°		5#-7#		17#-20#		25#-29#	
Room Cooler	70°	25°-30°		5#-7#		17#-20#		25#-29#	
Room Cooler	80°	25°-30°		5#-7#		17#-20#		25#-29#	

Columns 5, 7 and 9 give approximate cut-out low pressure switch settings for flooded or thermo-valve systems. Columns 6, 8 and 10 also give cut-in settings.

Columns 3, 5, 7 and 9 also give approximate constant pressure type direct expansion valve settings.

Cut out along outer line and insert in binder for ready reference.

FOR LEATHER BINDER WRITE TO H. T. McDERMOTT, SECRETARY REFRIGERATION SERVICE ENGINEERS' SOCIETY
433 N. WALLER AVE., CHICAGO, ILL.

NEW MECHANICAL DEVICES
Service Tools and Special Equipment

Under this heading there will be published illustrated descriptions of new or improved service tools and equipment for the Service Engineer.

RECORDING INSTRUMENTS HAVE SERVICE APPLICATION

THE service man's problem of trouble shooting and satisfying indignant but mistaken owners of either domestic or commercial installations is made much simpler through the use of recording instruments, such as illustrated on the cover of this issue.

Not the least important in their use is the psychological effect of a recording device which any housewife or non-technical owner can understand.

Many times complaints of faulty operation are purely imaginary. Charts showing the box temperatures maintained over a 24-hour period and the running time of the motor are invariably accepted as evidence of satisfactory operation. In case of genuine trouble, these records point to the source of trouble and give definite proof of correct operation after repairs or adjustments have been made.

The Practical Instrument Company, makers of "Practical" Recording Thermometers and Motor Operation Recorders, states that many service men quickly create a reputation for satisfactory work by leaving the charts showing temperatures and running time with the customer, who usually mentions them to friends and in this way many new customers are obtained.

Practical Recording Instruments, it is claimed, are sturdy and dependable and not subject to the necessity of extreme care such as must be accorded laboratory instruments. They are designed for the service man. The pen mechanism is integral with the face and moves out of the way when the face is opened. Winding and setting are done from the rear without disturbing the chart or stylus, and a convenient supply of charts and ink is kept in the back.

The handy carrying case provided for Practical instruments also finds a welcome by the service man.

Every shop will find Practical Recording Thermometers for showing box or room temperatures and a Motor Operation Recorder well worth their low cost.

Thermometers are supplied in a number of temperature ranges and motor operation recorders are supplied in two sizes—one for motors up to ½ H. P. and one for any higher H. P. of 220 volts or less.

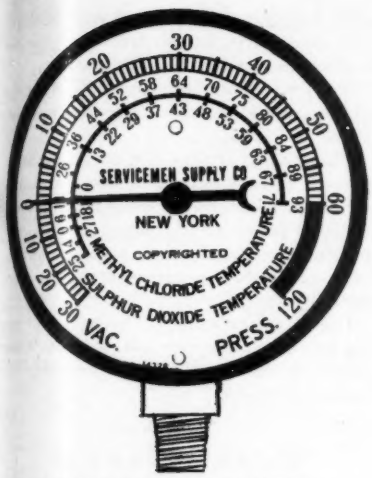
"PINCHOFF PROTECTOR"

A SAFETY device recently placed on the market by the United Manufacturing Company, 8678 West Pico Blvd., Los Angeles, California, trade-named "Pinchoff Protector" is applied on liquid lines wherever it has been necessary to collapse same with a "pinchoff" tool. It is sturdily made, and so fashioned that it firmly clamps the tubing on either side of the weakened spot and through the tightening of two bolts, it forms a rigid support that prevents liquid line breakage from vibration, accidental bending, or careless handling.

Many large service companies include the "Pinchoff Protector" as a routine matter in the "pinchoff" procedure and find the customer not only willing to pay the additional cost, but appreciative of an organization that is willing to cooperate in preventing an accident.

COMPOUND RETARD GAUGE

A NEW gauge has been recently introduced by the Servicemen Supply Co., 1819 Broadway, New York. Pressures can be read accurately between 30 in. vac. and 60 lbs. pressure.



COMPOUND RETARD GAUGE

Pressures are retarded to 120 lbs. so when working with methyl chloride or F-12 there is little danger of bursting the gauge. As an added feature saturation temperatures for methyl chloride and sulphur dioxide are etched on the dial in red. Pressures are etched in black.

BRANCH OFFICES MOVED

THE Trenton Auto Radiator Works, whose main office is in Trenton, N. J., have recently announced that their Pittsburgh office and warehouse has removed to 5114 Liberty Avenue, which is a short distance from the previous location. The New York office, store and warehouse has also removed from its former location on 68th Street to its new location at 210 West 65th Street. These offices and warehouses are maintained to quickly serve the refrigeration service engineer.

NEW V S CATALOG

A NEW catalogue of cylinders, valves, parts and fittings has just been issued by the Virginia Smelting Company, manufacturers of Extra Dry Esoto and V-Meth-L, two refrigerants that are well-known the world over.

It is primarily designed to aid the users of their products in obtaining the parts and fittings to facilitate the convenient use of their compressed gases by providing a readily accessible source of supply for these necessary connections and attachments.

The parts illustrated and described are stocked for the convenience of their customers and are ready for immediate shipment on demand. Ordering is further simplified by catalog numbers and code letters and may be handled by letter or telegraph. Shipments will be made from either West Norfolk or Boston as desired.

Copies of this convenient catalog may be had upon request to F. A. Eustis, Secretary, Virginia Smelting Company, 131 State Street, Boston, Mass.

MATHESON COMPANY OPENS NEW BRANCH

THE Matheson Company, with main offices at East Rutherford, New Jersey, announces the opening of a new branch office at 178 Martine Avenue, White Plains, New York.

This new office will be in a position to better serve the refrigeration service engineers of the County of Westchester, New York, as a complete stock of refrigerants and oils manufactured by the Matheson Company will be available from this branch.

FEDDERS NEWS

THE FEDDERS NEWS is an interesting house organ issued by the Fedders Mfg. Co., 57 Tonawanda St., Buffalo, N. Y., and contains news and articles of interest to all refrigeration service men. It describes and illustrates the various developments and manufacture of Fedders' products and the equipment and care used in the construction of the various refrigeration appliances.

In the June issue of *The Fedders News* an article appears, entitled "Full Pages Telling Fedders' Facts to Service Engineers," and the text of the article is as follows: "Installation and Service Engineers are important men in the refrigeration field! The man

who installs or services a household or commercial job has an important job.

"Full page Fedders' advertisements in THE REFRIGERATION SERVICE ENGINEER are now telling the story of how Fedders' Refrigeration Appliances are built to please installation and service engineers.

"THE REFRIGERATION SERVICE ENGINEER is edited especially for this branch of the trade."

NEW WESTINGHOUSE COMPRESSORS

THE addition of four new compressors to augment the Westinghouse Commercial Refrigeration line has just been announced by H. M. Wible, Manager of Commercial Refrigeration. These new units, Wible explained, will fill a long felt need in the field for commercial compressors of 1 and 1½ h.p. sizes.

Sixteen features of superiority are claimed for these new Westinghouse commercial units, including a newly designed compressor, economical operation, positive lubrication by oil-pump, and valve-in-head construction. All non-flared joints are silver soldered, and the balanced crank-shaft seal is individually fitted to the crank shaft. Other features of the new units are: Westinghouse starting switch with automatic overload protections and automatic re-set, efficient shell-and-tube condenser on water cooled models, and cooling coils for every specific purpose.

The models added to the line are: CWF-1001s, a one horse-power (water cooled) compressor; CAF-1001s, one horse-power (air-cooled); CWF-1501, 1½ horse-power (water-cooled); and the CAF-1501, 1½ horse-power (air-cooled) compressor.

The compressors in the four models are uniform in that they are vertical, two cylinder, single acting. The compressor block consisting of cylinders, crank-case and oil pump are cast in one block. A visible oil glass is located on each side of the crank-case. Swedish steel reed type valves are used. Both the intake and discharge valves are mounted in the head (not in reciprocating parts). This construction avoids the flow of refrigerant through the crank-case with its attendant lubrication difficulties. Low inertia type valves give the unit a remarkably high volumetric efficiency.

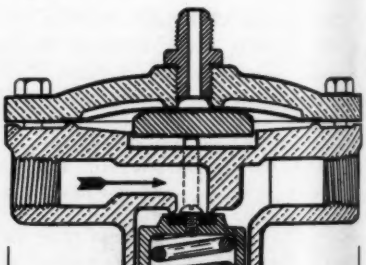
These new units are adapted to all types of commercial refrigeration applications, Wible explained.

The addition of these new open type compressors to the Westinghouse line now makes a variety of Condensing Units ranging from ⅛ horse-power to 1½ horse-power. The smaller size Condensing Units from ⅛ horse-power to ½ horse-power are hermetically sealed.

Larger compressors will be added to the present line in the very near future, Wible added, in his announcement concerning the commercial units.

WATER REGULATOR

THE engineering development department of the Chicago Electrimatic Engineering Co. announces the development of a new and improved condenser water regulator for Freon, methyl and sulphur. This regulator, the manufacturers claim, was developed to fill a well defined need, for a low priced, simple, rugged and efficient regulator for the smaller units. These valves are made in ⅜, ½ and ¾ inches.



CONDENSING WATER REGULATOR

The REFRIGERATION SERVICE ENGINEER

A Monthly Illustrated Journal, Devoted to the Interests of the Engineer Servicing Refrigeration Units, Oil Burners and other Household Equipment.

Vol. 2 June, 1934 No. 6

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Official Organ
REFRIGERATION SERVICE ENGINEERS' SOCIETY

RECOGNITION FOR SERVICE MEN

NUMEROUS reports have come to THE REFRIGERATION SERVICE ENGINEER, which apparently, from their widely separated geographical locations, reverses an age old axiom and leads one to believe that this condition is the *rule* rather than the *exception*. The objection is that some distributors and suppliers of parts, equipment and gases do not differentiate between the regular purchaser of such equipment, who has established himself as a refrigeration service engineer, and the occasional or one-time purchaser who is only interested in securing materials which will enable him to repair his refrigerator without the employment of a service man.

Too many times the complaint has been heard that the service man, in estimating or charging a system with a refrigerant, has learned that the purchaser of the refrigeration service is in a position to buy these parts or supplies for the same price as the service man.

Apparently in some instances, the list and net prices to the service man has very little meaning. It is a well understood fact that in practically all professions, the man engaged in that particular business is entitled to a better discount and this, after all, is the basic reason for the establishment of a list price. It hardly seems fair that the accredited service man, who has established himself and who has been instrumental in developing business through his efforts in recommending and installing new parts and accessories, is not acknowledged as this type of a purchaser and entitled to better discounts than this other class of buyer.

Far be it from THE REFRIGERATION SERVICE ENGINEER to suggest the best methods of handling this particular condition, although many distributors have adopted the iron-clad policy of recognizing only established service men and allowing them their published discount, with list prices applying to others.

A common practice, of course, has been the purchase by any one of the volatile gases, and the machine then charged by the purchaser of such gas. This practice is not only hazardous, but is undoubtedly letting some one in for some trouble. This condition has been recognized by various municipalities, and as a consequence legislation has been adopted, or recommendations proposed whereby only authorized service men may be eligible to purchase such gas.

SAFETY FOR SERVICE

SAFETY FIRST is so obviously the proper practice for service men that little comment on this subject should be necessary. Doing a thing continuously which constitutes a hazard, without getting into any difficulty at the present, is certainly slim assurance that at some future time this same practice may not result in personal injury or damage to the premises on which the job is being done. It certainly is a poor practice to continue doing a thing that is inviting serious loss.

The refrigeration service engineer is often placed in a precarious position as regards the safety of himself and others, as well as property. It is just as easy to make a practice of doing the job in the safe way. Too often a short cut of doing a service job proves to be the most expensive way in the long run. It costs nothing for safety but it certainly pays handsome dividends. Occupational accidents cause serious loss of man power and money each year.

REFRIGERATION SERVICE ENGINEERS' SOCIETY

Official Announcements of the activities of the National Society and Local Chapters appear in this department as well as articles pertaining to the educational work of the Society.

THE OBJECTS OF THE SOCIETY

To further the education and elevation of its members in the art and science of refrigeration engineering; with special reference to servicing and installation of domestic and small commercial equipment; for the reading and discussion of appropriate papers and lectures; the preparation and distribution among the membership of useful and practical information concerning the design, construction, operation and servicing of refrigerating machinery.

ASSOCIATION HEADQUARTERS: 433-435 North Waller Ave., CHICAGO, ILL.

National Educational and Examining Board Appointed

ONE of the major activities of the Refrigeration Service Engineers' Society, as provided for in its Constitution and By-Laws, is the preparation of educational material pertaining to the design, construction, operation and servicing of domestic refrigerators and small commercial refrigerating equipment and accessories and the distribution of such material among the members of the Society.

The committee charged with the responsibility of this work is represented by members of the various local chapters.

Mr. George H. Clark, Mercier & Clark, Inc., 6523 Grand River Ave., Detroit, Mich., has been appointed chairman of the National Educational and Examining Board, and under his supervision the work of this committee will be carried on. Mr. Clark by training and experience is well qualified for this important appointment.

After graduating from the Detroit High School, he spent three years at the Detroit Junior College, and then attended the University of Michigan where he graduated in June, 1926, having specialized in the study of thermodynamics of steam and power plant work, where he received his B. S. degree in mechanical engineering. After leaving college, Mr. Clark located in Chicago with the Chicago Central Station Institute and spent some time on an assignment in the operating department of Chicago's largest power plant and later in the efficiency department. Completing this work, he went with the Underwriters Laboratories as assistant engineer in the casualty and automotive department. In this position he received considerable experience in refrigeration. This experience was principally determining the safety features of domestic refrigerators, and as Mr. Clark states, "consisted chiefly in trying to ruin refrigerators rather than fixing them."

Following this experience, Mr. Clark returned to his home town of Detroit and entered the employ of the Copeland Products Co. in May of 1928, in which position he received his technical training and acquaintanceship with B.t.u.'s in the research and development department. In May of 1929, he became associated with the accessories division laboratories of the American Radiator Co. in the research and development departments, receiving further experience in heat transfer knowledge, determining the design of Castincoil evaporators and working on the development of the then new Detroit lubricator automatic and thermostatic expansion valves, as well as various types of control devices.

Mr. Clark left this company to enter business for himself in July of 1931, and a few months later in association with W. F. Mercier and E. A. Mayrend formed a new corporation, Mercier & Clark, Inc., which today does a general refrigeration business in sales

and service. Mr. Clark is vice-president of the present corporation.

GEORGE H. CLARK
Chairman, National Educational and Examining Board

The other members of the Educational and Examining Board, which will serve with Mr. Clark, are:

Mr. Herbert Herkimer, 1819 Broadway, New York City, president of the National Society and also president of the Herkimer Institute of Refrigeration.

Mr. Joseph G. Nolan, Chase & Nolan, Grantwood, N. J., member of New Jersey Chapter, who has had considerable practical experience in the installation and servicing of refrigerating equipment.

Mr. L. F. LaDue, Milwaukee, Wisc., Milwaukee Chapter, has been working in refrigeration for the past fifteen years, and for the past one and a half years has operated his own sales and service company, servicing all makes of domestic and commercial machines.

Mr. Fred Myers, St. Louis, Mo., member of St. Louis Chapter, has had ten years' general experience on the servicing and installation of refrigerating equipment.

Mr. C. E. Hamilton, Chicago, chairman of the Educational Committee of Chicago Chapter, and has had many years of experience in the installation of refrigerating equipment and is at present an engineer with the Utitilies Engineering Institute.

Detroit Chapter No. 1

Meeting of May 16

DETROIT Chapter has had many important matters for discussion at their meetings recently, and at the March 16 meeting the following subjects were discussed further:

The proposed Detroit City code, as submitted to the local chapter by Mr. H. Mills, chief of the Department of Buildings and Safety Engineering Department, coincides to a great extent with the code which the chapter submitted. This proposed code included licensing of refrigeration contractors and refrigeration service engineers. It also included a Class E System, which is a system containing eight pounds or less of refrigerant, which would not be necessary to install in rigid conduit excepting commercial installation. A hearing is to be held at an early date, at which representatives of the local chapter will be present.

As part of the educational activities of Detroit Chapter, a school for the training of refrigeration men as service engineers has been started. It also includes an advance course for service engineers now engaged in the business. There is an extreme shortage of good service men in the metropolitan district and therefore the necessity for training refrigeration service apprentices. The industry in general in and about Detroit is utilizing at the present time all of the available experienced men. By training men according to the highest standards, it is felt that they will receive a broader knowledge of the requirements of a service engineer than could be gained by training in company schools, which specialize on their own make of machine. Mr. George Clark, as chairman of the Detroit Educational Committee, and who has also been recently appointed as chairman of the Educational and Examining Board of the National Society, will have charge of this work.

The committee which was appointed to submit a standard estimate form for refrigeration service engineers has turned in a report, drafted a form, which with minor changes has been approved. Mr. Downs, president of the Detroit Chapter, is making

arrangements for proofs, which will be submitted at the next meeting. This form will be made up in triplicate and will be standard with the local service engineers, except for the imprinting of the name of each individual concern.

A committee has also been appointed to increase the membership of Detroit Chapter and in one week's work so far, four new members have been secured. It is expected and hoped that before the end of the year, the Detroit membership in good standing will total a minimum of seventy-five men engaged in service work.

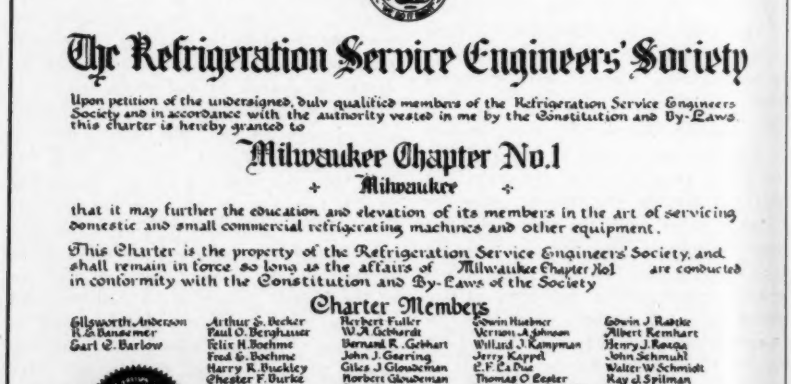
The matter of group advertising was given further consideration, and the proposed first advertisement was held in abeyance, due to the fact that it was too late for insertion in the *Builders' Guide*. It is hoped that some definite arrangements will be made shortly in connection with this activity. The matter is receiving splendid support.

Estimates have been received and further bids are being solicited regarding the adoption of a standard working uniform and emblem for same, and this matter is expected to be brought to a conclusion within thirty days.

Milwaukee Chapter No. 1 Receives Charter

ON May 15, Milwaukee Chapter No. 1, of the Refrigeration Service Engineers' Society, formally received its charter from the national organization. Mr. H. T. McDermott, national secretary, presented the charter to the chapter, which was accepted by Mr. G. D. Wang, president of Milwaukee Chapter.

Milwaukee Chapter formally organized itself some months ago as the Wisconsin Association of Refrigerating Engineers, for the purpose of following out the same objective



The Refrigeration Service Engineers' Society

Upon petition of the undersigned, duly qualified members of the Refrigeration Service Engineers Society and in accordance with the authority vested in me by the Constitution and By-Laws this charter is hereby granted to

Milwaukee Chapter No. 1

Milwaukee

that it may further the education and elevation of its members in the art of servicing domestic and small commercial refrigerating machines and other equipment.

This Charter is the property of the Refrigeration Service Engineers' Society, and shall remain in force so long as the affairs of Milwaukee Chapter No. 1 are conducted in conformity with the Constitution and By-Laws of the Society

Charter Members

Ellsworth Anderson, H. S. Bansemer, Earl E. Barlow, Arthur S. Becker, Paul O. Berghauser, Felix H. Boehme, Fred G. Boehme, Harry R. Buckley, Chester F. Burke, George A. Dietz, Joe A. Dorr, Clarence Ehlert, H. E. Fenger, Leon Fey, Herbert Fuller, W. A. Gebhardt, Bernard R. Gebhart, John J. Geering, Giles J. Glouderman, Norbert Glouderman, Otto Goetzke, J. H. Gugler, Wray Heath, C. A. Hoehne, Wm. E. Hoehne, Edwin Huebner, Vernon A. Johnson, Willard J. Kempman, Jerry Kappel, E. F. La Due, Thomas O. Lester, Frank A. Mc Laughlin, Fred G. Mershon, Henry Miller, Adolph Petchel, Andrew Quisler, Edwin J. Rabtke, Albert Reinhart, Henry J. Reuter, John Schmuhl, Walter W. Schmidt, Ray J. Spilman, Ray Swede, G. D. Wang, William J. Weiland, Lance Wilkerink, Lawrence H. Zeller

Granted May 14 1934

Signed A. T. McDermott Secretary

Signed Herbert Hoehne President

as the Refrigeration Service Engineers' Society, and after due consideration of the advantages of affiliating with the national organization, the following resolution was presented at their meeting of February 27, 1934, and unanimously adopted:

"That the Wisconsin Association of Refrigerating Engineers apply for charter from the national organization of the Refrigerating Service Engineers' Society, and that the association be known hereafter as Milwaukee Chapter No. 1 of the Refrigeration Service Engineers' Society, with a territorial jurisdiction within a radius of fifty miles of the city of Milwaukee.

Milwaukee Chapter membership is represented by the leading service organizations and individuals of that city, and the following officers serve the chapter:

PRESIDENT—G. D. Wang, W. M. Refrigeration Co.

VICE-PRESIDENT—J. J. Geering, 1455 N. 30th St.

SECRETARY—W. J. Kampman, 630 W. North Ave.

TREASURER—H. C. Fenger, 2006 W. Fond du Lac Ave.

St. Louis Chapter

Meeting of May 10

ST. LOUIS CHAPTER held its May 10 meeting in the David Ranken, Jr. School of Mechanical Trades, and in the absence of President Robins, Secretary Plesskott presided.

Mr. J. L. Shrode, of the Alco Valve Co., gave an interesting talk on the complete line of valves manufactured by his organization, and his talk was illustrated with stereopticon slides, showing details of valve construction, operation and proper installation. Mr. Shrode answered various questions relating to servicing of the expansion valve.

Meeting of May 24

President Robins called the meeting to order at the David Ranken, Jr. School of Mechanical Trades, and at the invitation of Mr. Bob Weicker, of the Brown Supply Co., the meeting of June 14 will be held in their

sales room and will be in the nature of a school for the proper servicing of the Grunow Electric Refrigerators. All members, as well as others interested in refrigeration servicing, are cordially invited to attend.

Plans were discussed and Saturday evening, June 16, was definitely decided upon for the charter presentation. Messrs. Eckhold and Pennington were appointed to make the necessary arrangements.

Mr. Lullman spoke briefly on the cooling systems his company is installing in its milk trucks, and further remarks were made on the same subject by Mr. C. J. Brooks of Anheuser-Busch.

The evening's educational program was devoted to service problems on ice cream cabinets.

New York Chapter

Meeting of May 4

NEW YORK CHAPTER held a special meeting on Friday morning, at 1819 Broadway, with President Herkimer presiding, and the usual formalities of the business meeting were disposed of, in order to discuss arrangements for the entertainment and first annual banquet of New York Chapter, to be held in conjunction with the presentation of the charter.

In addition to this business of the meeting, Mr. Kenneth M. Newcum, a member of the Society and also local representative of the Kerotest Manufacturing Co., gave an educational talk on refrigeration valves and fittings.

Meeting of May 24

A meeting of New York Chapter was held previous to the presentation of the charter, at room 312 in the Manufacturers' Trust Building, Columbus Circle, New York. There were 75 present, including guests.

A committee was appointed by the president to submit a schedule of flat rates for repairing and servicing, special attention to be given to the following and the charges for this work:

Removal and installation of compressor.
Overhauling of a stuck-up compressor.

Grinding an old seal including replacement and test.
Installation of a new seal including test.
Replacement of compressor gasket.
Replacement of compressor valves.
Replacement of compressor shut-off valves.
Time required for removal of oil and replacement of fresh oil.
Belt replacement.
Cleaning out plugged expansion valve.
Cleaning out plugged float.
Cleaning out plugged receiver valve.
Removal and replacement of expansion valve.
Removal and replacement of float.
Purging system.
Removal and replacement of dry coil—domestic.
Removal and replacement of float—domestic.
Removal and replacement of dry coil—commercial up to ten feet long.
Removal and replacement of float—commercial.
Dehydrating compressor.
Dehydrating coil.
Removal and replacement of chemical drier for drying refrigerant liquid.
Installation of new thermostat including test.
Installation of pressure switch including test.
Setting thermostatic expansion valve including test.
Installation of new set of brushes on motor.
Removal and replacement of motor.
Replacement of fuse including service charge.

And other items to be determined by the committee. The committee appointed is as follows:

E. J. Merenda—Chairman.
B. Schlig—Commercial installation and piece work.
W. Kurrle—Electrical repair shop practice.
J. Heinemann—Machine shop practice.
T. Waters—Commercial installation and servicing—methyl chloride.
T. O'Donohue—Manufacture service department practice.
C. Fornsel—Domestic servicing practice.

The special committee appointed to go into these matters will have its first meeting on June 7, at the office of Mr. T. Waters, 74 Trinity Place.

Following this meeting, the charter was formally presented to New York Chapter by

Mr. Walter Kempf, Second Vice-president of the National Society, who is a member of New Jersey Chapter. After formally receiving the charter, New York Chapter adjourned to the Cocoanut Grove, located in the Roof Garden of the Pent House of the Park Central Hotel, where a lavish entertainment and dinner awaited the membership and guests of New York Chapter.

Greater Chicago Chapter No. 1

Meeting of May 8

PRESIDENT T. J. FOWLER called the meeting to order, and after the usual business routine of the meeting, Mr. McIntosh, of the Imperial Brass & Mfg. Co., was introduced and described the various applications of the product his company manufactures. He had on display many of these accessories so that the members of Chicago Chapter could examine them during his talk.

Following this talk, a general discussion centered about the type of educational lectures that would be adopted for future meetings and it was the unanimous opinion that an actual machine should be had at each meeting, the educational discussion to be confined to this machine.

Meeting of May 22

Following the suggestion of the previous meeting regarding the educational program, a complete Iroquois compressor, with evaporator, was used to illustrate the talk of Mr. C. E. Hamilton, chairman of the Educational Committee, and further discussion was participated in by Mr. Paul Jacobsen, who has had experience on a number of Iroquois machines, as well as President T. J. Fowler.

The discussion proved of much interest to the members of Chicago Chapter and this type of educational program was suggested for future meetings, in which a member of the chapter will be delegated to talk on the type of machine with which he is most familiar.

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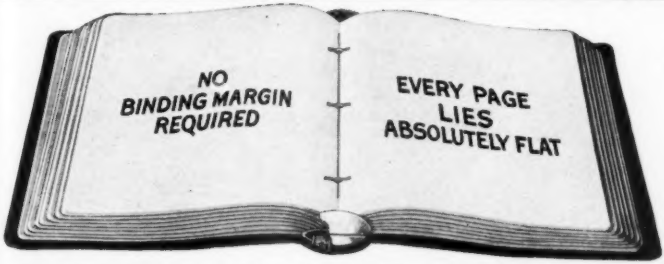

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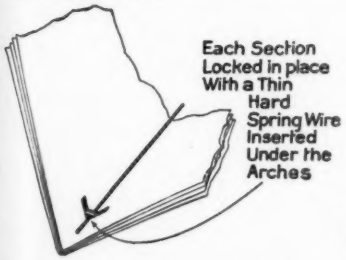

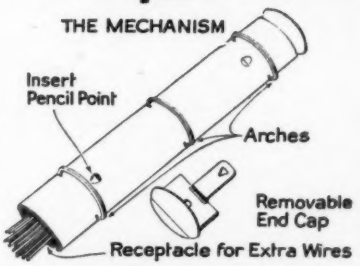

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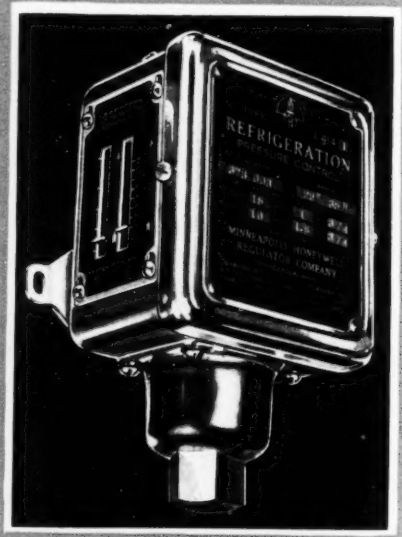

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